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10/531,632

10/31/2005

Jeong-Il Seo

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10/23/2008

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EXAMINER

LEE, PING

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

10/23/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                   |  |
|------------------------------|--------------------------------------|-----------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/531,632 | <b>Applicant(s)</b><br>SEO ET AL. |  |
|                              | <b>Examiner</b><br>Ping Lee          | <b>Art Unit</b><br>2614           |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potard et al (hereafter Potard) ("Using XML Schemas to Create and Encode Interactive 3-D Audio Scenes for Multimedia and Virtual Reality Applications") in view of Pihkala et al (hereafter Pihkala) ("Proceedings of the 2003 International Conference on Auditory Display").

The similarities between the claimed invention specified in claims 1, 5 and 9, and Potard will be discussed first. Their differences will be addressed immediately follow.

Regarding claims 1 and 9, Potard discloses a method and a data stream for generating a three-dimensional audio scene (see title) with a sound source whose spatiality is extended, comprising the steps of:

- a) generating a sound object (macro-object) composing the audio scene; and
- b) generating three-dimensional audio scene description information including sound source characteristics information for the sound object, the three-dimensional audio scene description information including a plurality of point sound sources that model the sound source (under "Introduction", several individual sound objects model the macro-object; also sections 2.3.1 and 2.3.2),

wherein the sound source characteristics information includes spatiality extension information of the sound source, said spatiality extension information enabling

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the sound source to include more than one dimension, and includes the size (how many times that the macro-object is being copied) and shape of the sound source expressed in a three-dimensional space (for example, the layout of the choir or the shape of the car defined by the tyres and the exhaust). See also Table 1 that each sound source is defined by spatial size and shape.

Regarding claim 5, Potard discloses a method for consuming a three-dimensional audio scene (see title) with a sound source whose spatiality is extended, comprising the steps of:

a) receiving (through WEB for example with full description of sound scenes; see section 1) a sound object composing the audio scene and three-dimensional audio scene description information including sound source characteristics information for the sound object (see section 3.1), the three-dimensional audio scene description information including a plurality of point sound sources that model the sound source (under "Introduction", several individual sound objects model the macro-object); and

b) outputting the sound object based on the three-dimensional audio scene description information ("3-D Sound" in Fig. 6),

wherein the sound source characteristics information includes spatiality extension information, said spatiality extension information enabling the sound source to include more than one dimension, and includes the size and shape of the sound source expressed in a three-dimensional space (see rejection for claim 1).

Potard fails to show that the size of the sound source is determined by a difference of coordinates in the three-dimensional space from a center of the sound

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source represented by the spatiality extension information in claims 1, 5 and 9. Potard teaches that size and shape of the sound source would be defined by parameters, but fails to explicitly teach how to do so in terms of using the coordinates. Pihkala teaches that the size the sound source is determined by a difference of coordinates ("by adding front, back and depth attributes" in sect. 3.1) in the three-dimensional space from a center of the sound source represented by the spatiality extension information. Thus, it would have been obvious to one of ordinary skill in the art to modify Potard in view of Pihkala by defining the size of the sound source based on the difference of coordinates in order to provide a way to define the sound source having three dimensions.

Potard also fails to explicitly show that the plurality of point sound sources are located on a surface defined by the three-dimensional space. Potard teaches the basic concept of how to use duplicated macro-objects to define a sound source occupying substantially in the three-dimensional space. Potard provides two specific examples, a choir as shown in Fig. 1 and a vehicle (under "Introduction"). Other sound sources are suggested as well, such as a Jazz band, a speaker and a crowd (section 2.3.1). Thus, Potard implies that one skilled in the art could define any specific type of sound source in any size and shape. A source defined by a plurality of point sources located on a surface defined by three-dimensional space is just one specific type of sound source. Therefore, one skilled in the art would have been motivated at the time of the invention was made to utilize Potard in view of Pihkala to define a specific type of sound source with its plurality of point sound sources being located on surface defined by the three-

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dimensional space because it was considered as a matter of design preference to include the sound source with specific dimension for composing the audio scene.

Regarding claims 2, 3, 6, 7, 10, 11 and 13-15, Potard discloses that the spatiality extension information of the sound source includes sound source dimension information that is expressed as three components of a set of three-dimensional coordinates (section 2.5.2) with a geometrical center location information (original location).

Regarding claims 4, 8 and 12, Potard discloses that the spatiality extension information of the sound source further includes direction information of the sound source (for example the directivity of the macro-object defining choir) and describes a three-dimensional audio scene by extending the spatiality of the sound source in a direction vertical to the direction of the sound source (by duplicating macro-object in a

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 11/796,808 (hereafter application '808) in view of Pihkala. This is a provisional obviousness-type double patenting rejection.

Claims 1-15 of the present invention read on claims 1-10 of application '808 with the exception of the size of the sound source is determined by a difference of coordinates in the three-dimensional space from a center of the sound source represented by the spatiality extension information. In the same field of endeavor, Pihkala teaches that the size the sound source is determined by a difference of coordinates ("by adding front, back and depth attributes" in sect. 3.1) in the three-dimensional space from a center of the sound source represented by the spatiality extension information (see Fig. 1). Thus, it would have been obvious to one of ordinary skill in the art to modify application '808 in view of Pihkala by defining the size of the sound source based on the difference of coordinates in order to provide a way to define the sound source having three dimensions.

### ***Response to Arguments***

5. Applicant's arguments filed 10/14/08 have been fully considered but they are not persuasive.

Applicant argued on p. 6 that Potard fails to show that the elements of three-dimensional audio scene description information including a plurality of point sound sources that model the sound source. This is not persuasive. As disclosed in section 2.3.1, Potard teaches how to create the macro-object by grouping several point sound sources together, cloning the same object with a position change or so on. In section 2.3.2, Potard further teaches how to reduce the amount of objects required to model a single sound source (it is noted that although this is also the objective disclosed in the instant specification, this feature has not been positively stated in any claim) by creating macro-objects library. Therefore, Potard teaches the claimed audio scene description.

On p. 6, applicant further argued that Pihkala only teaches a single sound source instead of the elements of a plurality of point sources that model the sound source. First of all, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Lastly, the claimed “the sound source” is a single sound source. The limitation with respect to “the plurality of point sound sources are located on a surface” has been discussed with respect to Potard.

On p. 7, applicant argued that application '808 or Pihkala fails to teach or suggest the claimed invention. It is noted that the provisional double patenting rejection is based on claims 1-10 of application '808 in view of Pihkala. The modified claims 1-10 of application '808 in view of Pihkala teaches each and every element in claims 1-15 of the present invention.



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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522.

The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ping Lee/  
Primary Examiner, Art Unit 2614

pwl